

THE
BOSTON MEDICAL AND SURGICAL JOURNAL.

VOL. LXII. THURSDAY, FEBRUARY 23, 1860.

No. 4.

LEUCOCYTHÆMIA.

[Translated for the Boston Medical and Surgical Journal from No. 29 of the *Allgemeine Wiener Zeitung* for 1858.]

BY B. JOY JEFFRIES, M.D.

Enlargement of the Spleen and Liver; Increase of the number of White Corpuscles during Life.

ELIZABETH HALLWACHS, aet. 45, Catholic, midwife, from Grinsing, mother of five children (the youngest being now 18 months old), had always been healthy. In August of last year she was for the first time attacked with chills, without being able to recall any exciting cause. Two days later, at about the same hour, she had a similar attack. Fourteen days afterwards, there was a recurrence of the chills for eight days, in daily returning paroxysms.

The patient first noticed at this time, in the left hypochondriac region, a tumor which was not painful, and of considerable size (according to her statement about that of the fist). It was therefore of some size before discovered by her.

Since January of this year the patient had had pain in this tumor, which had become as large as an infant's head, and had lost, as she thought, its mobility.

During February and March, she was quite comfortable for six weeks. But after this the chills returned with greater frequency, and the pain in the tumor became more severe, particularly after the fever turns; so that, March 22d, she appeared as an out-door patient on Prof. Oppolzer's clinic. There was at this time a tumor that reached inwards as far as the navel, and downwards to within three inches of the symphysis pubis. It evidently belonged to the spleen, and the patient was ordered quinine.

Since then, however, the chills and fever returned daily, and were increasing in intensity and duration. The attacks that at first only appeared once, now came thrice, and even four times during the day, and began to lose their typical character. The patient had, at the same time, constant diarrhoea, with pain at stool.

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She also lost her appetite, and had a "bronchial catarrh," with purulent sputa.

She accordingly entered the Hospital April 1st, when her condition was as follows:

Body of medium height; muscular system feebly developed; skin of a pale brown color; eyes sunken, sclerotica not yellow, the vessels moderately injected; forehead had the so-called "chloasma uterinum"; tongue dry, white coat on its edges. The jugular veins strongly dilated with blood, and plainly undulating even during the intermissions of fever; no murmur in them. Carotids strongly pulsating. Glands of the throat and neck slightly enlarged. Formation of the chest normal; the breasts still swollen and hard (the patient had only a short time previously weaned her child).

Examination of the chest gave the following physical signs.

In the right axillary line, dulness from the eighth rib downwards; in the mammillary line, from the sixth rib, and in the parasternal line the same to the ensiform cartilage of the sternum. In the *left* parasternal line, dulness from the upper edge of the third down to the sixth rib, and from here downwards tympanitic. In the mammillary and axillary lines, dulness from the under edge of the seventh rib downwards. Impulse of the heart between the fifth and sixth ribs—plainest in the parasternal line. Heart's sounds normal; second sound over the pulmonary artery, not much accentuated; first sound over the aorta, dull; second, loud. Dulness over the liver reaches in the mammillary line from the sixth rib to an inch and a half below the edge of the ribs; in the axillary line, it begins at the eighth rib. In the median line, the left lobe of the liver reaches from the sixth rib to an inch below the xiphoid cartilage. Enlargement of the liver is therefore evident. Its right lobe extends lower than the left. On the left, the dulness over the liver is separated from that of the region under the ribs by a small intervening tympanitic space. Percussion in the right inguinal region, clear and full. Dulness from faecal masses, to a slight extent, over the crest of the ileum. Liver not sensitive to pressure.

As was said above, the dulness begins on the left side at the under edge of the seventh rib. This is also the upper edge of the tumor now to be described. This tumor extends furthest towards the right side below the navel, i. e., to the outer edge of the right recti muscles. At the navel it projects an inch beyond the median line; above the navel, to the median line; five inches under the navel, one inch over the median line. So that the tumor has a periphery convex towards the right side. Posteriorly, it reaches to within two inches of the vertebral column. Its inferior edge is bounded in the iliac region by the crest of the ileum; further forwards by Poupart's ligament. In the median line, it reaches to within an inch of the symphysis pubis. The superior border of the tumor can only be determined by percussion; its other limits by palpation also. Over the tumor percussion is flat; on its edges,

slightly resonant and tympanitic; in the neighborhood clear and tympanitic. The tumor is therefore surrounded with organs holding air. The surface of the tumor is even, and its consistence hard and uniform. The lower edge is blunt; the right edge has six perceptible notches, the deepest one (which is two inches) lying under the navel. No perceptible fluctuation over the tumor. Its elasticity but slight. The tumor can be moved within certain limits from one side to the other, and also upwards and downwards. Its position changes with that of the patient. During inspiration, it falls somewhat lower. In the region of the tumor, and especially towards its posterior border, the patient has continuous, severe, burning, and lancinating pains, even when she is quiet and has no fever. Lying on the right side decidedly increases this pain. The attacks of fever commence with coldness of the lower extremities, creeping upwards as far as the arms, and then changing to heat and burning thirst. These now (at the time of her reception) come on three or four times during the day. At these times the pain greatly increases, especially during the cold stage.

The inguinal glands are somewhat swollen. The pulse, during the fever, 128; between times 84, soft and full. Dejections, since a few days, normal. Secretion of urine not altered. Urine of normal specific gravity, rich in uric acid, and holding a trace of albumen. The digestion, during the intermissions of the fever, not much disturbed.

An examination of the blood, taken by a local venesection (ordered by Prof. Oppolzer on account of the enlargement of spleen and the fever), showed a relative increase of the white corpuscles. On coagulating, the blood formed a large white clot, under which were white granules the size of a millet or hemp seed, round, and streaked in appearance, composed, under the microscope, of white blood corpuscles rolled together. There was, in addition, also a large red clot. We had, therefore, blood, leukæmic to a small degree.

The following comprise the data from Prof. Oppolzer for the diagnosis of the case.

1. As regards the tumor in the left hypochondrium of the patient, it answers to the greatly enlarged and hardened spleen, which is shown by its position, its surroundings, the percussion, its movement during inspiration, absence of fluctuation, and the peculiar notches on its inner (anterior) edge.

We have here, therefore, a splenic tumor, and, moreover, that form which occurs with leukæmic blood.

The enlargement of the spleen in our case is a chronic one, as shown by the duration of the disease, the great increase of size of the spleen, and, finally, the absence of any injury, pyæmia, or inflammation in the heart, as primary lesions.

Of chronic splenic tumors are to be excluded the lardaceous

(*speckig*) and colloid forms, such as accompany constitutional syphilis, the mercurial cachexia, rachitis, scrofula, &c., and which are generally associated with colloid degeneration of the liver and kidneys or albuminuria.

The "pigment spleen," after intermittent, has as little connection with a decided increase of the white corpuscles as the lardaceous degeneration. This leukæmic condition of the blood corresponds more to Virchow's so called chronic splenitis. Anatomically a "flesh spleen" (*Fleischmilz*), as a result of Virchow's "parenchymatous inflammation," where the capsule is thickened, the trabecular tissue hypertrophied, the intervening pulp hard, the parenchyma-cells in large numbers, and in many cases yellowish or reddish-brown formations. In all probability we have such a tumor as this in our case.

The question whether the leukæmic splenitis is in fact very different from the splenic tumor of intermittent (since the clinical course of the two diseases are in many respects similar), may be so answered. An increase of the white corpuscles of the blood occurs in intermittent, and also in typhus, pneumonia, during pregnancy, in the puerperal state, in tuberculosis, with cancer, in anaemia and inanition. But in these diseases the leukæmia is only small in amount, disappears again, and the patients convalesce. If leukæmia was identical with intermittent, patients with the latter, living in the malarious regions, and having enormous enlargement of the spleen, would exhibit a decided increase of leukæmic blood and all the peculiar lienteric symptoms of the disease.

Enlargement of the liver is very often associated with chronic splenitis, and Virchow mentions having found white corpuscles in the liver, which appeared precisely similar to the corpuscles of the spleen. In our case, also, there is enlargement of the liver.

2. The presence of leukæmic blood must be proved, in order to confirm the diagnosis.

In the first place it is to be remembered that leukæmic blood may be confounded with that of lipæmia, and, moreover, the character of the blood corpuscles may be altered by an increase of their coloring matter—*melanæmia*.

As regards lipæmia, the milk-white color of the serum of the blood is here occasioned by its richness in fat. If we shake up the serum with ether, the fat will be freed, which will not, therefore, be the case when the white color is dependent upon the presence of white corpuscles. Lipæmic blood occurs especially in hard drinkers, in pregnant women, and those in the puerperal state.

Our patient's blood was not lipæmic, but leukæmic. Its redness was caused by there still being a large number of red corpuscles present. (Their decrease is the principal characteristic of leukæmia.) Purely white blood has only been seen at *post mortems*; during life its color is generally only somewhat brighter, like raspberry syrup, and in the severest forms grayish red.

The diagnosis founded on the two points above mentioned was confirmed by the further progress of the disease, as will be seen further on.

As regards the character and form of the disease, it must be first said that the leukæmia is only to be considered a symptom. In the beginning of chronic inflammation of the spleen it is but slight, as was very markedly the case with our patient. Virchow records several cases in which, in spite of the size of the splenic tumor, there was at first no leukæmia, and where it did not appear till after several months.

Leukæmia is therefore a secondary appearance, that occurs with splenic tumors, and (which was not previously mentioned) with diseases of the lymphatic glands.

In the four cases that Prof. Oppolzer has seen up to this time, the lymphatic glandular system was but once the starting point of the disease, in which case all the glands of the body were considerably swollen, but also elastic, having the feel of lipoma, particularly on the neck. These tumors developed by sudden enlargements, without any particular pain, and whilst the other functions of the body were normal, notwithstanding the paleness and emaciation. The symptoms of leukæmia afterwards showed themselves in their fullest extent, and the patient succumbed to the disease.

Lately some cases have been seen, where cancer was mentioned as the cause of leukæmia. In one of Heschl's there was degeneration of the lymphatic glands, and in some other cases of English observers neither the spleen nor the glands are said to have been affected.

Before Virchow introduced the leukæmia into science, similar cases were explained as pyæmia. Nevertheless, Bennett, who introduced the name of *leukocythaemia* (which has now, and, in fact, with better right, spread abroad as *polyleukocythaemia*), has endeavored to defend his right of priority.

No satisfactory explanation of leukæmia exists as yet, because the formation and degeneration of the blood corpuscles, and the part which the spleen and lymphatic glands play in this, is not at all settled.

If we lay stress only on the increase of the white corpuscles, all attempts to explain the difficulty of breathing, the loss of muscular power, in short the chlorotic appearances, are useless. The diminution of the red corpuscles must also be explained, which has not yet been done by the vaguest hypothesis, although the increase of the white corpuscles has been said to be caused by those in the spleen passing into the stream of the blood.

The distinction that has been made between the white corpuscles and pus corpuscles amounts to nothing, when we remember that the size of cells suspended in a fluid depends upon the density of that fluid, and that the (larger) pus cells are floating in a thin-

ner medium than the white blood corpuscles; and, moreover, that we have *different* formative cells before us, which would naturally in some measure differ from each other in appearance.

The same applies to the corpuscles in the lymphatic glands when compared with those in the spleen.

The viscid character of the corpuscles, and their rolling and sticking together so easily, would explain why in leukæmia the capillaries are so readily plugged up and metastases follow in the later stages of the disease.

There is no ground here, however, for the theory of those who would assume a plugging up of the capillaries of the lungs with pus in pyæmia.

As to the causes of leukæmia, there is but one thing yet ascertained, namely, that in the cases that have occurred with women there was derangement of the menstruation, and that the disease was developed during the puerperal state; as was also the case with our patient.

One of Prof. Oppolzer's cases was a day laborer, who worked as a digger in a marshy place. Without having had any intermittent, he suffered from a splenic tumor, dropsy, and nasal hemorrhage, of which latter trouble he finally died through anaæmia. The other cases were of no particular ætiological interest.

Leukæmia has been seen at different periods of life, in both sexes, and with various constitutions. Intermittent fever is rarely a cause of the chronic splenitis in Virchow's acceptation.

The appearances in the disease are not yet sufficiently classified to establish its symptomatology. A variety of symptoms have been ascribed, which in fact are really not peculiar to it.

The color of the skin in most of the cases was pale, with a shade of yellow, as there was generally enlargement of the liver.

In all cases Prof. Oppolzer observed pain in the spleen, with the exception of the leukæmia above spoken of, which was accompanied by affections of the lymphatic glands. The pain came on at intervals, accompanying an increase of the fever, as in our case.

The *principal* symptom is the fever, which has a typical course, is accompanied with heat and chill, irregular in its duration and times of returning, appears on an increase of the pain, and is not generally much improved by quinine. There is generally emaciation during the later stages. The debility which is so constantly present, just as in chlorosis, may depend, like the difficulty of breathing and the mental depression, upon the diminution of the red corpuscles.

The augmented accumulation of white corpuscles may cause in the later stages great difficulties in the circulation, inflammation and metastases. Hence came the idea of regarding the disease as pyæmia. In this view the most common occurrences are thrombus in the vessels, with phlegmasia, bleeding from various mucous membranes, particularly of the nose, even to complete exhaustion, pe-

ritonitis, pneumonia (in one case of Prof. Oppolzer), formation of abscesses in the skin, furuncles, carbuncles, &c. Dropsy occasionally occurs, but it seems generally to be produced by the splenic tumor. It is by no means constant. Alterations in the digestive tract are not very marked, or at least do not seem to be immediately connected with the disease in the blood. For example, when our patient was troubled with diarrhoea, the leukæmia was certainly still very inconsiderable. The urine held a good deal of the urates, and afterwards free uric acid, which is especially connected with the disease of the spleen, for this formation of uric acid occurs also in intermittent fever.

The "key-stone," however, is generally the hectic fever, with a fatal termination, or death is caused by one of the above-mentioned secondary appearances.

The prognosis is most unfavorable. At least no case of lientoretic leukæmia has as yet been seen that was not fatal. The other form has not been often enough observed to decide this point as respects it, still the termination has always been fatal. Our treatment can therefore only be directed to the symptoms, since we do not know the nature or exciting cause of the disease.

The few therapeutical deductions from the previous cases which are applicable to leukæmia, will be spoken of in their application to our case.

The following was the course of the disease with our patient.

When she entered the hospital, a few leeches were applied over the spleen, without relieving the pain in the slightest. Sulphate of quinine was ordered at the same time, also without much effect, for on the 4th of April, when the patient had already taken forty-two grains of quinine, the attacks of fever were still very severe, and one that begun at 3 o'clock, P.M., lasted till the next morning. The condition of the patient, aside from the fever turns and pain in the spleen, was satisfactory. The bronchial catarrh that had for a long time troubled her, entirely disappeared, the diarrhoea had yielded to treatment, and the appetite was pretty good. The fever paroxysms and severe pain lasted in spite of the quinine. The leeches and warm applications were repeated, and continued up to the 9th.

Examination of the blood during this time, showed a continued increase of the white corpuscles.

On the 8th and 9th, the patient, under the use of quinine, had no chills, but they returned on the 10th, and lasted an hour and a half. On this day Fowler's solution was given, in order to allay the feverish symptoms.

A physical examination, on the 19th, showed a new enlargement of the spleen. The digestion still good, dejections somewhat loose. Urine held urates, but not so much as at the commencement. A trace of albumen was present. On the 20th, the patient again had fever, from which she had been free for two days. Re-

sort was therefore again had to quinine, and large doses of it finally prevented the paroxysms of fever from returning so often, and the pain was *entirely relieved for a time*.

This relatively favorable condition lasted till the beginning of May, when, without any apparent cause, the paroxysms of fever returned with still severer pain. At the same time the patient had oppression at the chest, diarrhoea, and the dejections were mixed with mucus and epithelium. The salicin, of which she took two scruples, had no effect. On the 9th of May, leeches and quinine were again ordered.

On the 18th, after four days' relief, the patient was again attacked with high fever and severe pain in the hypochondrium, and with this, headache, diarrhoea and strangury. In the intermissions, pulse 100. Frictions of *spiritus saponatus* were used, and extract of colombo, with tannin, given to check the diarrhoea.

The patient went on in this way, her condition sometimes made worse by the fever and pain in the spleen, the diarrhoea and loss of appetite, and sometimes better by the remission of the fever, especially after the use of Peruvian bark, which often was effectual for some time together.

On the 7th of July, the patient complained for the first time of pain in the thighs. Coagulation of blood was discovered partly in the deep and partly in the superficial veins, especially on the left leg. A hard cord was felt on the inner side of the left thigh, and a redened streak over it. The same sort of cord was felt under Poupart's ligament.

There was oedema in the neighborhood, and the skin was red. These coagula corresponded to the saphena vein, but as that alone would not explain the interruption to the circulation, the crural vein must also have been affected. The patient felt very weak, complained continually of severe pain in the foot; the pulse was quick (120) and small; and the appetite quite gone. Cold applications of Goulard's lotion were made to the foot, strong doses of morphia given internally, and the leg raised.

On the 8th and 9th (July) this condition continued, the oedema having somewhat decreased, however. No metastases to be found. Lately the urine has held a great deal of the urates. The blood has been comparatively richer in white corpuscles. The sleep bad—the pain insupportable. The cold applications were continued, and also morphia, in stronger doses ($\frac{1}{4}$ gr.). This condition lasted, with slight intermissions, till the 13th.

On the 13th, the patient looked cadaverous, was very emaciated and extremely weak. Splenic tumor not very sensitive. No chills. Less pain in foot. Less oedema. The corded feeling of the vessels still perceptible. Pulse frequent (100), intermitting, small. Metastases or bleeding have not occurred. Urine rich in urates, thick, cloudy, pale brown. Laetucarium was given as a narcotic. After a short agony, death followed on the evening of the 14th.

As regards the therapy, we may gather from the course and progress of the disease, that of all the remedies used to allay the fever and relieve the pain in the spleen, quinine and cortex Peruvianus alone were of service, and only in a certain degree. Narcotics, bleeding, &c., were in this case almost of no service. Whether the use of the Carls baths, Marien baths or the waters of Kissing would be advantageous in the beginning of leukæmia, is doubtful. Hardly any other opinion could be held respecting the effects of moxæ, acupuncture and similar procedures in use among the natives of the East.

(To be continued.)

ATTEMPT TO PROCURE VACCINE MATTER FROM THE ORIGINAL SOURCE—PRODUCTION OF TRUE VARIOLA.

[Communicated for the Boston Medical and Surgical Journal.]

In the year 1836, Dr. John C. Martin, then a practitioner of medicine in Attleborough, Mass., conceiving that the sometimes imperfect protection afforded by the vaccine disease, arose from a deterioration in the matter used, inserted into the udder of a cow lymph taken from a pock upon the body of a man who died of variola. Subsequently matter derived from the cow was inserted into the arm of about fifty persons. This was at the middle of October. Presently, one Babbitt, being among the first vaccinated, began to exhibit unlooked-for symptoms which alarmed his family. Physicians were summoned, and after examination and comparison of opinions, the patient was declared to have the true smallpox. Then all those who had been vaccinated from the same source inquired anxiously what was to be their fate. The vaccinations (the sequel will show that inoculation was the more proper term) had been made on successive days up to Babbitt's illness, and others soon began to be affected. The physicians in the neighborhood again assembled, and recommended that due precautions should be taken against the spread of smallpox, as probably all who had received the virus from Martin must suffer unmodified variola. Dr. M. became at once the most unpopular of men, although, as I learn from cotemporary informants, one of whom was himself a sufferer, the experiment had not been entered upon without consultation, which relieved him from undivided responsibility. Excitement and consternation prevailed, sustained by the consecutive occurrence of new cases. Business was suspended; the panic of fear magnified the danger, and no man could see where it would end. Dr. M. stoutly contended that the phenomena were merely the manifestations of genuine kine-pox in its pristine force; but we have the testimony of Dr. Sylvester Fuller, that the disease was variolous. Dr. Fuller was an accomplished physician; had served in the army, where he had seen much smallpox, and his evidence, in concurrence with other physicians of the time, is conclusive.

Two hospital houses were established, to which many of those attacked were removed. Four months elapsed before the last patient was discharged. Not all who received the virus were sick; and of those who suffered, three died.

The affair quite ruined Dr. M. He went to the West, returned insane, and remained some time in a hospital. He is still living, mildly crazed, but not incapable of intelligently following some simple occupation.

The senior Dr. Manchester, of Pawtucket, then in active practice, received some of the crusts from Dr. Martin. They are represented to have been thinner, and differing in appearance from the normal vaccine scab, and were not used.

As the experiment of transmitting smallpox virus through the system of the cow, has, at sundry times, been successfully accomplished, the question arises what was the cause of Dr. M.'s failure and mishap. The conclusion seems unavoidable that the matter taken from the cow was not the modified virus, but identical with lymph inserted from the human subject. Doubtless it had lain in the wound unabsorbed and undigested, and after a festering process quite local, the eschars were removed, and the non-vaccine matter re-introduced in pseudo-vaccination.

"Take thou some new infection to thine eye,
And the rank poison of the old will die,"

was the philosophy of Skakspeare. Unfortunately, Dr. M.'s experiment was in conflict with the injunction. The preservation of the virus unspoiled, while deposited in the cow's udder, is quite consistent with the well-known persistent character of the contagion.

S.

Attleborough, Feb., 1860.

ACCIDENTAL INJECTION OF TURPENTINE INTO THE VAGINA.

[Communicated for the Boston Medical and Surgical Journal.]

BY G. P. HACHENBERG, M.D., COXSACKIE, N. Y.

AN Irish woman, aged 25, consulted me for a uterine difficulty, with ascarides of the rectum. She was *enceinte*, and advanced five months. In my prescription for her, I advised the use of a bland astringent injection into the vagina, with a strong turpentine injection into the rectum. These were to be used twice a day—morning and evening. After trying the remedies a few days, she called at my office again, with a doleful expression of countenance, saying that the injections were proving too powerful, and that she was "sick," although in the family way.

I immediately suspected an error in the application; that the vaginal injection had been used for the rectum, and *vice versa*, which proved to be the case. For three days she injected the spirits of turpentine, with equal parts of mucilage, into the vagina instead

of the rectum, the bland astringent injection being used for the latter.

This mistake, for the first day, did not cause much pain and inconvenience; the second day, she had sanguineous discharges from the vagina, with some heat and soreness. On the third, there was more irritation, but less flow of blood. There was but little constitutional participation.

By the injection of olive oil, alternated with cold water, the soreness speedily subsided, leaving the parts in a perfectly unimpaired condition. The leucorrhœa she labored under was relieved, and utero-gestation has uninterruptedly taken its usual course.

Massachusetts General Hospital.

Dislocation of the Femur.—(Under the care of Dr. CABOT. Reported by J. STEARNS, Jr.) Carroll, a teamster, æt. 33, entered the Hospital, Dec. 10th, with dislocation of the femur, twenty hours after the accident.

The accident occurred while the patient was engaged in unloading cotton from a vessel; his foot slipping, he was thrown down by a bale of cotton, and dislocation of the head of the left femur on the *dorsum ilii* took place. The usual phenomena of this form of dislocation were present. The day before his entrance, ineffectual attempts had been made at reduction, with and without the aid of ether; and there was a considerable degree of swelling about the region of the hip.

The patient was etherized immediately on entrance, and reduction effected by Dr. Cabot, in the following manner. The leg was flexed upon the chest, carried outward, and, by circular rotation, brought over to the opposite side. The head of the bone was brought to the lip of the acetabulum, but no further. An assistant was then directed to raise the hips, and, on repetition of the rotary movement, the head of the bone was brought into place.

The next morning, the leg presented the appearance of being elongated, and on repeated and careful measurements, it was found to be actually an inch and a quarter longer than the other leg. The trochanter was found in its proper relation, and the head of the bone apparently in the acetabulum, though there was considerable swelling about that region. Cold was complained of in the leg, and, again, extreme heat in the foot. Evaporating lotions applied to hip.

Dec. 18th.—Patient has complained of constant changes from heat to cold in foot. He has been kept perfectly at rest, and there is less swelling in hip.

21st.—The elongation of leg, the cause of which was probably due to the presence of blood, &c., preventing the head of the bone from occupying its proper place, is much less.

Jan. 7th.—Patient up and about on crutches. The swelling, &c., about hip has entirely subsided, and length of leg corresponds to that of his other, and, on the 11th, the patient was discharged well.

Fracture of the Skull; Recovery.—Peter McKenzie, of Nova Scotia, Vol. LXII.—4**

set. 19, sailor, entered the Hospital Dec. 8th, 1859, at 8, P.M., with fracture of the skull, which had occurred four hours before.

Patient was perfectly conscious on entrance, and the intellect unimpaired. He stated that, while playing with a shipmate, he received a blow from the but end of a "deck-broom," the same striking his forehead, and knocking him senseless. Considerable haemorrhage followed. On entrance, there was an opening over the frontal bone, three quarters of an inch in diameter, nearly circular, in the median line, just above the nasal eminence. There was a little haemorrhage, and a probe passed in seemed to reach the membranes of the brain, the pulsation of which was distinct. On removing the blood, the bit of integument driven in by the broom handle came out to the surface, and was found attached at the lower edge of the wound. Pupils equal; pulse full, steady, 74. Patient was put on his back, and cold applied to the head, sinapsis to feet, and a purge ordered of croton and castor oils. At 11 $\frac{1}{2}$, P.M., some cerebral symptoms manifested themselves. Patient started from bed in violent convulsions. This lasted but a few moments. A clot of blood came from the wound, and some venous oozing. Patient was relieved, and became quiet. Partial insensibility was present; also strabismus of the left eye, the pupil being turned out of sight. An hour subsequent, the pupils were equal, and patient was conscious, though complaining of severe pain in the head.

Dec. 9th.—Patient quiet and making no complaint. On examination by Dr. Cabot this morning, probe passed four inches into the cavity. Pulse 80, quick. R. Ol. tiglii, gtt. ij.; ol. ricini, 3 ij. M. Diet, gruel. Water dressing to wound.

10th.—Patient very easy. Pulse 66, full, bounding.

11th.—Right pupil larger than left. Pulse 72, steady. Cathartic to be repeated.

12th.—Both pupils larger than usual, and right still larger than left. More swelling about external wound, with an inflammatory appearance. Twelve leeches ordered to region of wound.

13th.—Relief from leeches.

15th.—Integument sloughing and removed to-day. Patient very quiet, and makes no complaint. Appetite good. Low diet.

21st.—Patient has continued pretty much as before. Probe passed in, strikes an elastic, yielding mass, like membranes of brain, and downwards, touches rough bone. Wound discharges pus in moderate quantity.

26th.—Wound granulating rapidly. Patient up and about the wards. Obstinate costiveness has continued through the whole case.

Jan. 10th, 1860.—Wound entirely healed, and patient discharged well.

Cases of Frost-Bite; Amputation at the line of Demarcation; Recovery without Sloughing. CASE I.—John Brian, blacksmith, set. 30, had a frost-bite on December 15th, and entered the Hospital December 20th.

This patient, after drinking freely, crossed Jamaica Pond, on the ice, without his shoes. Went to sleep on side of pond, and in the morning the feet and hands were badly bitten. He received no treatment previous to entrance to Hospital. Stated that he had not slept, nor eaten anything to speak of, since the accident.

On entrance, all the toes of both feet were quite black at their ex-

tremities ; the legs covered with blisters, swollen, and in a highly inflamed condition. The hands were also blistered, but not so severely as the feet. Pulse full and bounding, 66. Patient in weak condition generally. Mucilage of acacia was ordered to hands and feet ; also a cathartic and stimulant. Feet and hands were wrapped in wadding.

22d.—Delirium tremens last night.

23d.—Feet of dark-green color. Distinct line of demarcation exists about left leg, four inches from malleolus. Considerable inflammation in both legs, and line on right, not distinct.

25th.—Lines of demarcation quite distinct on both legs, and inflammatory aspect has subsided. No sensation in either foot. Patient in fair condition, generally. Pulse full, 96. Dr. Cabot decided to amputate at the lines of demarcation. Drs. Bigelow and Warren present. The patient was etherized, and both legs removed by the circular operation, as decided on. The flaps were dissected up, and *slit on either side*. There was no hemorrhage to speak of.

Jan. 1st.—There has been *no sloughing at all*, and the stumps are doing finely.

Feb. 10th.—The stumps are healed, excepting at the points where the neighborhood of the flaps caused ulceration and protrusion of the ends of the tibiae, which were removed at the proper time, and now are covered with abundant granulations. Patient in fine health, and will soon be discharged.

CASE II.—Clark, aet. 18, pedlar, entered the Hospital January 19th. He was frost-bitten twenty days before. He was drunk, and slept out, freezing the hands severely, and the feet and ears slightly. Line of demarcation distinct on left hand.

On the 21st, Dr. Cabot removed the two last fingers at their junction with the metacarpal bone ; the middle finger was removed at the second joint, being at lines of demarcation.

Feb. 10th.—No sloughing, and the stumps and wounds are healing rapidly.

CASE III.—Thos. Noble, aet. 27, entered the Hospital January 12th, having been frost-bitten two weeks before. He had been sleeping out at night, under the influence of drink. Could give little account of himself. On the right foot, the line of demarcation seemed established just above the point of incision for Chopart's operation. Toes of left were discolored and sloughy.

Jan. 21st.—Dr. Cabot amputated the right foot just above the ankle-joint.

Feb. 10th.—Patient is still in House and convalescent. There has been no sloughing, and stump is doing perfectly well, healing rapidly.

The features in these cases are, the amputation at the lines of demarcation, and the absence of all sloughing.

Reports of Medical Societies.

EXTRACTS FROM THE RECORDS OF THE MIDDLESEX EAST (MASS.) DISTRICT MEDICAL SOCIETY. E. CUTTER, M.D., SECRETARY.

MAY 18th, 1859.—The Society met at the house of Dr. Howland Holmes, Lexington, honorary member.

Dr. DREW, of Woburn, produced a portion of shoe-binding leather,

of irregular and twisted shape, some six inches in length, and of a width varying from one quarter to three quarters of an inch, which had been the cause of an intestinal obstruction for eight days, in a child four years of age. The symptoms briefly were as follows:—Constant vomiting for eight days before, and four days after the removal of the obstruction. The matters vomited were of a green color, and became somewhat fecal at the expiration of six days. There was pain in the head and bowels. The pulse was high. The abdomen full and tympanitic. The urine scanty. Thrice there was a tendency to convulsions. Cathartics were given by mouth and rectum. Diuretics and anodynes were freely used in large doses. At times, by giving opiates, there would be a retention of cathartics for twelve hours, and then they would be rejected by the mouth. Scybala preceded the discharge of the leather. The symptoms did not subside upon the removal of the foreign body. The case was seen by Dr. W. F. Stevens, of Stoneham, who diagnosed it as enteritis.

The relation of this case was interrupted and followed by many remarks and questions. Dr. Parker, of Melrose, inquired if a statement he had somewhere seen was borne out by the experience of those present, namely,—that in cases of obstruction of the bowels, the diminished quantity of the urine bore a direct relation to the height of the point of occlusion—if high, the urine is said to be scanty—if low, free. Several cases besides, were mentioned, but this relation had not been noticed.

Dr. INGALLS, of Winchester, inquired why it was so frequently necessary to catheterize the urinary bladder after a fracture of the thigh, and the reply seemed to be that it resulted from the nervous shock.

Dr. A. Chapin, of Winchester, then read the following paper upon strangulation by metallic rings.

Two Cases of Strangulation, the result of Compression by Metallic Rings.

CASE I.—In September of last year, a lady applied to me, in much distress, from a swollen and compressed finger. Subcutaneous inflammation existed along the palmar surface of the first phalanx of the middle finger; which afterwards proved a severe case of thecal abscess. The case was complicated by compression, caused by two gold rings on the finger, which were so tight that they had not been removed for years; and which, in its then swollen condition, could not, by any ordinary method, be displaced. The necessity was urgent; the rings must, in some way, be gotten off. To file or to cut them was out of the question; so deeply were they imbedded in the soft parts, and so exquisitely tender and painful had the finger become. Had there been only the swelling incident to impeded circulation, the method which I have somewhere seen suggested, might perhaps have succeeded:—i. e., commencing at the extremity of the finger, to wind it closely with a string or tape, till the ring is reached, then to pass the end under it and commence unwinding, pulling the ring along with it. Another method which I have also seen recorded, suggested itself, and seemed best suited to the case—to dissolve the rings with quicksilver. I accordingly rested the hand on a table, and crowded cotton into the interstices between the fingers on each side the rings, thus forming a concavity or basin, sufficiently tight to hold the mercury, with which it was then filled. The mercury was occasionally stirred

for thirty or forty minutes, when the rings became so soft and brittle, that they easily broke and came away. I should have remarked, in its place, that the rings were previously washed with alcohol, to remove any dirt or unctuous matter that might adhere and impede the action of the quicksilver. Ether would probably have been better than alcohol for the purpose.

CASE II.—A week or two since, my door-bell rang smartly, one day, and without much delay rang again, and then again the third time. Such a warning implied urgency, and without much combing or brushing, I hastened to attend. A lady and boy were there. The lady, who was the mother, was dishevelled in her hair and her attire; had an earnest, an anxious and an impetuous look. She was disconcerted and distressed; hurried unceremoniously into the house, walked the room, refused to be seated, and begged immediate attention to her son, who had injured himself, she feared beyond reparation. The boy was about eleven years old, seemed shy and anxious, and moved with constraint, refusing to sit. He watched intently my countenance and my movements, as if to judge what awaited him; and when I put my hand into my pocket, he seemed to expect it was for a knife. On my own part, I had many conjectures what might be the cause of such manifestations, and rather suspected a case of paraphimosis, or something pushed into the urethra; but it was neither. The boy's penis I found enlarged, in its full length, to its utmost limit of extension; of almost cartilaginous hardness, and of deeply-livid color. The tenderness and aching were also extreme. At first sight, it was not manifest what had caused such disturbance; but on examination it was found encircled, close to the pubis, by a flat *steel ring*, about three-eighths of an inch in width and the same in diameter. The tumefaction was such as entirely to close over it from the opposite sides. Here was a case which foreshadowed trouble. It could not be reached by a file, could not be dissolved by mercury, and the string method was not very promising. The ring must be broken if possible; and to accomplish it, I used a pair of narrow tooth-extracting forceps; and by bending the ring backwards and forwards a considerable number of times, it at length separated and came off, and the *member* speedily returned to its normal size and color. There was then rejoicing on the part of the mother and boy.

I am aware that the foregoing cases may seem, to some, unimportant and trivial. But they are not so. They are liable, at any time, to be encountered; may perplex and embarrass, and, if not relieved, may seriously injure the patient and impair the reputation of the physician. They are of more consequence to be understood familiarly and be met promptly, than amputation at the hip-joint, excision of the upper or lower maxillary bone, removal of the ovaries, and most of the grand operations in surgery, which so much less frequently occur, and which are so seldom undertaken by most medical practitioners. It is the every-day difficulties which we should be most ready to encounter, and a mention of some of them at such meetings as this, may be of mutual benefit; and even publishing them occasionally, may serve a more general good.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON: THURSDAY, FEBRUARY 23, 1860.

CARBONATE OF LITHIA IN GOUT.—Experience has taught that, in the great majority of cases, new remedies fail to answer the expectations, not only of those who first advocate their use, but still less of others who have no personal interest in their success. Yet we are bound to lend an unprejudiced ear to any suggestion which comes from one, whose name is associated with honest and successful labor in the investigation of disease.

These considerations lead us to call attention to the use of a new remedy proposed by Dr. Garrod, in his work on Gout and Rheumatic Gout, a notice of which we find in the *Lancet* for December 24, 1859. As the author's views of the pathology of the disease have an important bearing upon the treatment, we give some of them here. He says, "there can be no doubt that the essential component in gout deposits is urate of soda, which always assumes a crystalline form." This he considers a pathognomonic lesion, as it is not noticed after rheumatic or any other inflammation, and was invariably found in the numerous examinations of patients who had had the disease in all its forms. In continuation, he says:—

"Other matters are, indeed, often present, in varying quantities, derived from the tissue in which the deposition has taken place; but the large amount of phosphate of lime which is occasionally met with, is probably derived from secondary deposition, from the urate of soda acting as a foreign body, and producing ordinary inflammation; and thus, as in the case of the formation of cretaceous tubercles in the lungs and elsewhere, giving rise to phosphatic exudation, which must be regarded, not as related to the disease as gout, but as the result of common inflammation only."

In connection with this, the results of Dr. Garrod's analysis of the blood, as given by the reviewer, are interesting, showing, as they do, that the

"Healthy blood contains the merest trace of uric acid or urea, so small as to be in general undiscoverable, except by the most minute and searching chemical examination, and not always then."

"That, in gout, the blood is invariably rich in uric acid, which exists in the state of urate of soda, and can be separated from it, either in the form of the crystalline salt in acicular needles, or as rhombic crystals of uric acid."

"That, in acute rheumatism, the blood is free from uric acid, or at least contains no more than in health."

"That the serum obtained by the action of an ordinary blister yields uric acid when the blood is rich in this principle, except when the blister is applied to a surface affected with gouty inflammation."

"That the perspiration seldom contains uric acid; but that, in gout, oxalate of lime may be crystallized from it, as also from the blood."

"The urine," we are told, "in the earlier stages of gout is scanty, and the uric acid, measured by the twenty-four hours' excretion, also diminished; that this acid is thrown out in much larger quantities as the disease is passing off, and that then amounts even far above the patient's daily average may be excreted."

In the chronic stage, the quantity of uric acid excreted becomes still smaller.

The treatment which the author considers the most advisable, is the following :

"The diet should be very light, and chiefly amylaceous; diluents freely used, but no alcoholic stimulants allowed, unless in exceptional cases. The medicinal treatment should consist in the administration of some simple alkaline saline, combined with a moderate dose of colchicum; if necessary, purgatives may be given, selected according to the habit and condition of the patient. In the majority of cases, this will be found to be all that is necessary; but in some instances certain modifications may be essential: for example, if there be plethora, the question of the abstraction of a few ounces of blood may possibly arise; and, on the other hand, if the vital powers are at a low ebb, and great vascular and nervous depression exists, ammonia, in the form of the sesquicarbonate, may be desirable, in addition to, or as a substitute for, other salines; at the same time, colchicum should be altogether omitted, or used with the greatest caution. The only application required, in the majority of cases, is cotton wool covered lightly with oiled silk, which forms a protection to the joint; but now and then an anodyne may be advantageously used, and a small blister is occasionally of service."

In chronic forms of gout, Dr. Garrod considers that the following are the indications necessary to be fulfilled :—

"First, to treat the chronic forms of gout by less heroic means than those employed in the acute disorder.

"Secondly, to render the blood pure by augmenting the various secreting functions, more especially of the kidneys and skin.

"Thirdly, to restore the power of the digestive organs, which are usually much impaired in chronic gout.

"Fourthly, to attend to the local mischief which the long-continued gouty inflammation induces in the articular structure.

"And, lastly, to carefully regulate the diet, and pay proper attention to regimen means."

In conclusion, he proposes, as a new remedy, the carbonate of lithia, which possesses a very remarkable property, "that of forming the most soluble salt of uric acid known." As this is rare, we give the following facts concerning it, for which we are indebted to Mr. Blackmore. Lithium exists only in a few minerals, the most common of which are spodumene, found at Killiney, near Dublin, Ireland, and lepidolite, a Swedish mineral. This metalloid is white, like sodium, and becomes oxidized immediately on exposure to the air. The mineral waters of Pyrmont, in Germany, contain, in 16 ounces, 0.0030 grains of carbonate of lithia; those of Mariensbad, 0.0675 in the same quantity; those of Aachen, 0.0006; and those of Winterbach, 0.0030 of sulphate of lithia. These springs have, for many years, been regarded as peculiarly efficacious in this class of affections.

THE NEW YORK DISPENSARY.—From the Annual Report of this Institution, which has just appeared, we learn that, supported, officered and managed, as it has been, by private philanthropy, it has relieved, since its organization in 1790, more than *one million of patients*, a number larger than the whole present populations of New York and Brooklyn united. During the past year, 44,627 persons of both sexes have received medical and surgical aid, at an expense, on the whole, of not less than \$10,000; of which sum only \$1,700 were supplied by the public, \$700 by the State, and \$1,000 by the city of New York.

MARYLAND AND VIRGINIA MEDICAL JOURNAL.—This publication, the first number of which has just reached us, is the continuation, under

another name, of the *Virginia Medical and Surgical Journal*, which is well known throughout the country for the ability with which it has been conducted in the hands of Drs. McCaw and Otis. Dr. Otis having retired from the editorship, his place is occupied by Dr. Van Bibber, of Baltimore, Dr. McCaw still retaining his position as senior editor. The editors are assisted by an able corps of co-editors, a list of whose names appears on the title-page. The number received contains many articles of interest, and from its whole appearance, both inside and out, we may fairly presume that it will continue to maintain the character and influence which it has hitherto had.

THE SECEDED STUDENTS.—As there seems to have been much discrepancy with regard to the number of students who left Philadelphia for Southern Schools, we are glad to get at the exact truth. From a statement in the *Maryland and Virginia Medical Journal*, it appears that on the 21st of December, two hundred and forty-four students went to Richmond from Philadelphia, and since that period not less than one hundred have passed through that city to take up their studies farther south. One hundred and forty have matriculated at the Medical College of Virginia, and are now diligently engaged in attendance on the lectures and examinations of the course.

LECTURES ON SANITARY SCIENCE.—We have received a circular containing a prospectus of a course of lectures to be given by Mr. E. Y. Robbins on Sanitary Science, and "especially on that branch of it which treats of the influence of the qualities of the air we breathe upon health and longevity." We have not had the pleasure of listening to Mr. R., but, recommended as he is by several of our most eminent physicians, among whom we notice the names of Drs. John Ware, Edward Jarvis, R. D. Mussey and H. G. Clark, we have no doubt these lectures will prove interesting and instructive. The subject is certainly a most important one, and if Mr. Robbins can prevail upon the female portion of our population to abandon hot rooms, give up late hours, and use sufficient exercise regularly in the open air, he will not only do a good service to the present generation, but to those who come after us.

AMERICAN MEDICAL SOCIETY OF PARIS.—It appears, from the correspondence of the *N. Y. Times*, that this Association recently attracted the attention of the Police by neglecting to give the requisite notice, on a change in its place of meeting:—"For several months the meetings were held in the new place, when it became necessary, for some incidental affair, to hold communication with the Prefect of Police. New men in the meantime had been placed at the heads of bureaux—men who had never heard of such a society; and societies, ever since the dangerous clubs of 1848, are the particular horror of the Police. The consequence was that there was a great row at the Prefecture about that very innocent institution. The first thing was to order the Society to cease its meetings. The next thing was to call the Commissary of the new district to account for permitting a society to go on unnoticed in his district, for he knew absolutely nothing of it, and had made no report on the subject. He came near losing his place by his neglect. The President of the Society was called twice to the

Prefecture, where he was obliged to enter into endless details on the nature of the Society, the character of its members, and the limits of the debates.

"A domiciliary visit was also made by a secret agent to all the members—that is to say, to their *concierges*. The President, in his capacity of chief conspirator, was honored with two visits. Questions were asked as to what sort of individual each was, when he went out and came in, what sort of company he kept, whether there were ever many persons at one time in his room, &c. When the Society resumed its sittings, a policeman was sent to attend the two first meetings, to be able to report from sight that the Society was really what it purported to be, and that no political discussions took place. He did not understand English, but he expressed himself satisfied all the same; and, with mutual expressions of regret at what had occurred, the affair terminated.

"Evidently the Society was to blame in not fulfilling a simple requirement of the law—a requirement which seems indeed very simple and very insignificant, but which happens to concern a system so delicate and so complicated in its structure, that, like a watch, the least jar throws it into a terrible confusion."

THE AMERICAN MEDICAL ASSOCIATION will hold its thirteenth annual meeting at New Haven, on the *first Tuesday of June, 1860*. The secretaries of local societies, colleges and hospitals, are requested to forward to the undersigned, the names of delegates as soon as they are appointed.

STEPHEN G. HUBBARD, M.D., *Secretary,*
New Haven, Ct.

CONVENTION FOR REVISING THE U. S. PHARMACOPEIA.—The following appointments of Delegates to the Convention for revising the Pharmacopeia, to meet in Washington on the first Wednesday of May next, having been duly made known to me, are hereby announced, in compliance with a provision of the Convention of 1850.

From the Massachusetts College of Pharmacy, Messrs. Theodore Metcalf and Charles T. Carney; from the New York Academy of Medicine, B. W. McCready, M.D., E. H. Davis, M.D., and E. R. Squibb, M.D.; from the College of Physicians of Philadelphia, Geo. B. Wood, M.D., R. P. Thomas, M.D., and Robert Bridges, M.D.; from the University of Pennsylvania, Jos. Carson, M.D., R. E. Rogers, M.D., and Jos. Leidy, M.D.; from the Jefferson Medical College of Philadelphia, Franklin Bache, M.D., and T. D. Mitchell, M.D.; from the Philadelphia College of Pharmacy, Messrs. Wm. Procter, Jr., Edward Parrish, and Alfred B. Taylor; and from the Medical Society of the State of North Carolina, Wm. G. Thomas, M.D., Peter E. Hines, M.D., and Edward Warren, M.D. By order of the Convention of 1850,
Philadelphia, Feb. 14th, 1860. GEO. B. WOOD, *President.*

NEW MODE OF EXTRACTING GUNPOWDER FROM WOUNDS.—When gunpowder is encrusted in the skin, it is customary to extract it by means of needles or the point of a bistoury. To save patients the pain of this operation, M. Busch applies to the part a solution of corrosive sublimate, five grains to the ounce. An eczematous eruption is thus excited, and the dried vesicles then contain the grains of gunpowder,

which are very easily extracted. The skin retains its normal color in the region thus treated, and no tatooing is observable.—*Archiv. für Path. Anat., &c.*

INJECTION OF SULPHATE OF ATROPINE ON THE PNEUMOGASTRIC NERVE IN ASTHMA.—Professor Courty, of Montpellier, has communicated to the Academy of Sciences of Paris a case wherein he used this novel kind of treatment. The patient was a lady aged 54, who for several years had suffered from very severe fits of asthma. No organic disease of the heart was discovered. Relief was obtained in several fits, which occurred at three and four months' interval, by emetics, purgatives, frictions with mercurial and belladonna ointments, opium, valerian, and blisters dressed with morphine, sulphureous waters, &c.

In August of this year, the fit having recurred, M. Courty injected on the internal side of the sterno-mastoid muscle, and on a level with the thyroid body, six drops of a solution of sulphate of atropine (one grain of the salt to one hundred of water), just on the tract of the sheath which contains the vessels and the pneumogastric nerve. The trocar was introduced to the depth of only three or four lines, for fear of injuring the important vessels of the region. Symptoms of narcotism were observed, but the breathing was freer. The effects of the atropine lasted till the next day, when a second and similar injection was made on the right side. The narcotism now persisted during three days, and was combated by purgatives, enemata, tartar emetic, &c.; and on the fourth day, a third injection of seven drops was had recourse to, the canula being introduced a little below the former puncture on the right side, to the depth of eight or nine lines, and moved about to allow the liquid to penetrate. Strong narcotism ensued, but it did not last long, and the fit of asthma was completely controlled.—*Lancet.*

ONLY 36 colored children were born in the city of Providence (R. I.) during the year 1859—and in the month of January, of the present year, 12 colored persons died.

VITAL STATISTICS OF BOSTON.
FOR THE WEEK ENDING SATURDAY, FEBRUARY 18th, 1860.

DEATHS.

	Males.	Females.	Total.
Deaths during the week,	38	40	78
Average Mortality of the corresponding weeks of the ten years, 1850-1860,	39.2	36.4	75.6
Average corrected to increased population,	68.1
Deaths of persons above 90,

METEOROLOGY.

From Observations taken at the Cambridge Observatory.

Mean height of Barometer,	23.939	Highest point of Thermometer,	41
Highest point of Barometer,	30.300	Lowest point of Thermometer,	2.5
Lowest point of Barometer,	29.706	General direction of the Wind,	NW.
Mean Temperature,	19.7	Whole amount of Rain in the week,40
During the week 5 inches of snow fell—equal to .40 of an inch of rain.			

ERRATA.—Page 21, 19th line from top, for “once in three weeks,” read *once a year, at about the same period*; page 37, 6th line from top, for “infusionis” read *infusi*; page 45, 21st line from bottom, for “Dr. Thompson” read *Dr. Simpson*.

Communications Received.—On Smallpox.—Case of Pleuro-Pneumonia.
Books and Pamphlets Received.—Treatise on Malpractice and Medical Evidence, comprising the Elements of Medical Jurisprudence. By John J. Elwell, M.D., Member of the Cleveland Bar. (From the Author)—The Action and Sounds of the Heart. A Physiological Essay. By George Britton Haldorf, M.D., M.R.C.P.L., F.R.C.S.E., &c. (From the Author.)

DIX.—In Savannah, Geo., Dr. John F. Posey—formerly a Surgeon in the U. S. Navy, and for forty years a practising physician in Savannah.

Deaths in Boston for the week ending Saturday noon, February 18th, 78. Males, 38—Females, 40.—Accident, 1—apoplexy, 2—asthma, 1—inflammation of the bowels, 3—bronchitis, 2—burns, 1—cancer, 1—consumption, 13—convulsions, 2—cholera infantum, 1—croup, 2—dropsy, 3—dropsy in the head, 2—debility, 1—puerperal diseases, 5—bilious fever, 2—scarlet fever, 4—gravel, 1—homicide, 1—disease of the heart, 1—intemperance, 1—inflammation of the lungs, 11—congestion of the lungs, 2—disease of the liver, 1—old age, 1—palys, 1—premature birth, 2—smallpox, 6—unknown, 2—whooping cough, 2.—Under 5 years, 30—between 5 and 20 years, 3—between 20 and 40 years, 30—between 40 and 60 years, 8—above 60 years, 7. Born in the United States, 51—Ireland, 23—other places, 4.